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## Dominican Republic

### Bio-Fuels

### Jatropha

### 2008

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**Report Highlights:**

Production of Jatropha is very limited to date. We are aware of small projects in four areas (including one visited by the border last year near Haiti). Area planted to date is negligible with prospects up to about 2,500 hectares, if projects are fully developed.

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Includes PSD Changes: No  
Includes Trade Matrix: No  
Annual Report  
Santo Domingo [DR1]  
[DR]

## INTRODUCTION

***Jatropha*** is a genus of approximately 175 succulent plants, shrubs and trees (some are deciduous, like *Jatropha curcas* L.), from the family *Euphorbiaceae*. The name is derived from (Greek ***iatros*** = physician and ***trophe*** = nutrition), hence the common name **physic nut**.

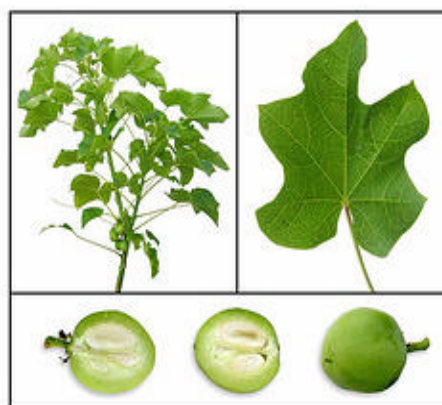
The plant is native to Central America and has become naturalized in many tropical and subtropical areas, including India, Africa and North America. Originating in the Caribbean, *Jatropha* or *Piñon de leche* (as is commonly called in the Dominican Republic) was spread as a valuable hedge plant to Africa and Asia by Portuguese traders. The mature small trees bear separate male and female flowers, and do not grow very tall. As with many members of that family, *Jatropha* contains compounds that are highly toxic.

*Jatropha curcas* L. is an important feedstock for the production of biofuels. Its widespread use is gaining popularity as a quick growing source of oil-bearing nuts that can be pressed to produce biodiesel products. *Jatropha* has also been proven to have strong anti-erosion qualities which make it ideally suited for use in some of the arid lands in the Dominican Republic. *Jatropha* has also been a crop of choice in development programs in Africa where local villages have grown *Jatropha* on small plots of land and have hand-pressed the oil for use in generators, sewing machines and small motors. Glycerin, a by product of *Jatropha* oil, can also be used to produce soap. A recent study on watershed preservation commissioned by USAID recently in Haiti reinforced this fact, adding that it was more effective than the tree-planting efforts that have been used to help reforest the country.

Estimates of *Jatropha* seed yield vary widely, due to a lack of research data, the genetic diversity of the crop, the range of environments in which it is grown, and *Jatropha*'s perennial life cycle. Seed yields under cultivation can range from 1,500 to 2,000 kg/HA, corresponding to extractable oil yields of 540 to 680 l/HA or 58 to 73 US Gal/Acre. *Jatropha* can also be intercropped with other cash crops such as coffee, sugar, fruits and vegetables.



Fully developed *Jatropha curcas* L.



Different parts of the plant and fruit

One of its characteristics is that the hardy *Jatropha* is resistant to drought and pests, and produces seeds containing up to 40% oil. When the seeds are crushed and processed, the resulting oil can be used in a standard diesel engine, while the residue can also be processed into biomass to power electricity plants.

However, despite its abundance and use as an oil and reclamation plant, none of the *Jatropha* species have been properly domesticated and, as a result, its productivity is

variable, and the long-term impact of its large-scale use on soil quality and the environment is not really documented.

The total dependence of the Dominican Republic on imported fossil oils and the increasing international prices has motivated the Central Government through the Dominican National Energy Commission (CNE) to consider renewable energy alternatives such as wind and ethanol as the most important energy sources for the country. An alternative to these two sources, *Jatropha* becomes an option for biomass and biodiesel production in dry and low productive lands. *Jatropha* on small plots of land could produce small volumes of hand-pressed oil for use in generators, sewing machines and small motors. Glycerin, a by product of *Jatropha* oil, can also be used to produce soap.

#### JATROPHA SITUATION IN THE COUNTRY

The National Energy Commission has initiated some timid efforts to introduce *Jatropha*, not as hedge plant, as it has traditionally being used, but as a source for biodiesel for small engines in low productivity lands. Although there is limited activities in other sources of biofuels, there are some efforts devoted to *Jatropha*. There efforts can be summarized as follows:

The current situation is that the Commission has sponsored several initiatives in the country. There are two in the North West part of the country (West of Santiago) in the Province of Monte Cristi.

- One of the Agrarian Institute project in Monte Cristi has assigned land to a private group led by a Guzman family, for *Jatropha* production. In principle, a total of 6,000 Ta (377 HA) will be devoted to this initiative. This project appears to be in its initial stages of development where only five percent of the land has been planted less than six months ago (February and May 2008). At the date of this report, the majority foliage planted was less than three months old. The seeds for the plantation originated from a Brazilian source. They anticipate that the rest of the land may be planted in the next twelve months. It is interesting to note that the land is fertile, it has been leveled and they are using drop irrigation technology. The quality of the land could be used for food purposes with a variety of higher value crops.



Dominican Republic map

- A second project, also in Monte Cristi (Palo Verde, near Proyecto La Cruz) is currently being developed. The land is State owned and belongs to Agrarian Reform Institute (IAD). A total of 2,000 Ta (126 HA) will be used partially for Jatropha. The venture is expected to plant and produce Higuiereta (or Castor bean [*Ricino ricinus communis*]) and Jatropha. So far only 700 Ta (44 HA) or 35 % have been planted. Out of the area planted, only a portion of the planted lot (11 HA) is Jatropha and the rest Higuiereta. Several months after the initial plantation, they began to harvest Higuiereta. Unfortunately data on plants/acre, yields, etc are not available. Little attention appears to be devoted to the Jatropha and land use is not optimal and humidity levels in the area have not promoted growth as in the other plantation. No further details were offered.
- According to the Export and Investment Center (CEI-RD) there is a third CNE proposed project in Monte Plata ((North of Santo Domingo). It is our understanding that the project has not initiated. No details are available at this point.
- According to CEI-RD officials, a fourth project is in progress. A private Spanish firm, BIOFIELS INTERNATIONAL, Biofuel Division of GLOBASOL S.A. is planning to develop a project in Azua (110 km West of Santo Domingo) with a local NGO SurFuturo, where local farmers will plant about 32,000 Ta ((2,000 HA) of Jatropha to be sold to this group for processing. They claim that they have invested in a near-by port facility location to install the biodiesel processing plant. They also state that they have a small Jatropha plantation in Monte Plata (50 km. North of Santo Domingo). Further details are not available.
- Another experimental plot is in progress near Banica (West of la Vega, at the border with Haiti. There is a nursery with several hundred plants being developed to be planted in small farms in the region. An NGO is promoting subsistence farming in arid lands for biofuel production. The age of the small and scattered plantations (10-100 plants) near the town vary between 6-10 months old, in 1-3 Ta (0.06-0.20 HA), restricted growth and development due to dry weather stress.

Although it is not related to Jatropha, Rafael Fernandez from RJS Group, is in the process of setting up a 400,000 Ta (25,000 HA) project in La Solitaria, Monte Cristi where they will produce sweet sorghum for ethanol production. Further details will be reported at a later date as they become available.